

**Listing of claims.**

**Claim 1:**

1. (Cancelled)

**Claim 2:**

2. (Cancelled)

**Claim 3:**

3. (Cancelled)

**Claim 4:**

4. (Cancelled)

**Claim 5:**

5. (Cancelled)

**Claim 6:**

6. (Cancelled)

**Claim 7:**

7. (Cancelled)

**Claim 8:**

8. (Cancelled)

**Claim 9:**

9. (Cancelled)

**Claim 10:**

10. (Cancelled)

**Claim 11:**

11. (Cancelled)

**Claim 12:**

12. (Cancelled)

**Claim 13:**

13. (Cancelled)

**Claim 14:**

14. (Cancelled)

**Claim 15:**

15. (Cancelled)

**Claim 16:**

16. (Currently Amended) The search method program of Claim ~~45~~ 19 further comprising a result report generator routine for generating a report including at least a predetermined number of records sent to said query response generator routine for display to a user.

**Claim 17:**

17. (Currently Amended) The search method program of Claim ~~45~~ 19 further comprising a result report generator routine for generating a report including at least a predetermined number of records sent to said query response generator routine for use by a user.

**Claim 18:**

18. (Currently Amended) The search program of Claim 45 19 further comprising explanation generator routine for generating a report with data related to a number of times said B Tree search routine is employed during a said user query.

**Claim 19:**

19. (Currently Amended) A search method program for performing a B or B+ Tree search responsive to a user query wherein said user query has a range for a first key value and a definite second key value is also specified in said user query, said program comprising:

a get next leaf page search routine having

a comparison element for examining a last record on a leaf page to determine if it has a first key value in said range and a second key value equal to said definite second key value specified in said user query.

a decision making element for determining which of two search routines should be used in fetching a next leaf page, said decision making element for generating a search using next sequential leaf page fetch locator signal resident in each leaf page if said first key value of said last record on a leaf page was in said range and said second key value of said last record on a leaf page was equal to said definite second key value, else for generating a signal value indicating a trapeze fetch will be used to find a next leaf page for record searching.

a B Tree search routine for searching root and index and data pages for next sequential first key values in said range when said signal value indicates a trapeze fetch will be used, and

a fetch routine for generating a page address fetch message sendable to an operating system to fetch said next page.

a record searching of a fetched page routine for sequentially searching

records within a said fetched next page and for providing records matching each of said sequentially searched records from within a fetched next page to a query response generator routine, said record searching of a fetched page routine having a comparison routine for comparing first and second key values within each record to a current one of said first key values in said range and to said second key value, and.

~~The search program of Claim 15 further comprising~~ an alternate switch-on-off-trapeze-fetch routine, wherein said alternate switch-on-off-trapeze-fetch routine has:

a recording routine for recording a positive swing value for each time a B Tree search is performed and a selected leaf page resulting from said search is not a same leaf page as a leaf page that would be selected by a sequential leaf search, and for recording a negative swing value each time a B Tree search is performed and a selected leaf page resulting from said search is a same leaf page as a leaf page that would be selected by a sequential leaf search;

a send disable-send enable signal routine for sending a disable B Tree search signal to said decision making element if said swing value reaches a predetermined positive value and for sending an enable B Tree search signal if said on-off value reaches a predetermined negative value,

and wherein said decision making element has a disable-enable trapeze fetch routine responsive to said disable B Tree search signal for performing a next sequential leaf fetch each time said decision making element receives said disable B Tree search signal, and responsive to said enable trapeze fetch signal each time said decision making element receives said enable B Tree search signal to enable said B Tree searching.

#### **Claim 20**

20. (Currently Amended) A search method program for performing a B or B+ Tree search responsive to a user query wherein said user query has a range for a first key value and a definite second key value is also specified in said user query, said program comprising:

a get next leaf page search routine having

a comparison element for examining a last record on a leaf page to determine if it has a first key value in said range and a second key value equal to said definite second key value specified in said user query,

a decision making element for determining which of two search routines should be used in fetching a next leaf page, said decision making element for generating a search using next sequential leaf page fetch locator signal resident in each leaf page if said first key value of said last record on a leaf page was in said range and said second key value of said last record on a leaf page was equal to said definite second key value, else for generating a signal value indicating a trapeze fetch will be used to find a next leaf page for record searching,

a B Tree search routine for searching root and index and data pages for next sequential first key values in said range when said signal value indicates a trapeze fetch will be used, and

a fetch routine for generating a page address fetch message sendable to an operating system to fetch said next page,

a record searching of a fetched page routine for sequentially searching records within a said fetched next page and for providing records matching each of said sequentially searched records from within a fetched next page to a query response generator routine, said record searching of a fetched page routine having a comparison routine for comparing first and second key values within each record to a current one of said first key values in said range and to said second key value, and,

The search program of Claim 15 further comprising two additional routines, a first additional routine for turning off said second search when said second search is active and a second additional routine for turning on said second search when said second search is inactive, said first routine having a disable signaling means to disable said decision-making element from selecting said trapeze fetch routine responsive to a disable signal from said disable signaling means, said disable

signaling means for sending a disable signal if said B Tree did not skip any leaf pages when last performed, said second routine having an enable signaling means to enable said decision-making element to select said trapeze fetch if said selection is disabled, said enable signaling means for sending an enable signal when a predetermined number of pages that could have been skipped by said next sequential leaf fetch have been skipped.

**Claim 21:**

21. (Original) The search program of Claim 20 wherein said predetermined number of pages that could have been skipped by said next sequential leaf fetch is between 1 and 6.

**Claim 22:**

22. (Original) The search program of Claim 20 wherein said second routine further comprises first element for determining if a current first key value is found in any record on a leaf page, second element for determining if a new first key value in said first key value range is found in any record on a leaf page, and a counter, wherein a count is added if said first element finds no current first key value in a record on a leaf page and wherein the count is reset to its initial value if said second element finds a new first key value in said first key value range on a leaf page, and wherein when said counter reaches a predetermined value, said second routine enable signaling means is activated to send said enable signal.

**Claim 23:**

23. (Original) The search program of Claim 22 wherein said predetermined value is from 2-5.

**Claim 24:**

24. (Currently Amended) The search program of Claim 45 19 wherein said search fetched page routine searches all records in each said fetched leaf page and returns all records having said second key value, regardless of whether a

current first key value is found in said records.